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Research Report No. 37, Site Index Equations for Loblolly and Slash Pine Plantations in East Texas, Update : 1995

Glen Dirksmeyer

Kelly Scott

Curtis VanderSchaaf

Raymond Worthy

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**Site Index Equations
for
Loblolly and Slash Pine Plantations
in
East Texas**

Update: 1995

by

Glen Dirksmeyer
Kelly Scott
Curtis VanderSchaaf
Raymond Worthy

(all of whom were FOR 317 students Spring '95)

REPORT 37

From
the

East Texas Pine Plantation Research Project
College of Forestry
SFASU
Nacogdoches, TX 75962

April ... 1995



SITUATION

Site index prediction equations for loblolly (*Pinus taeda* L.) and slash (*Pinus elliottii* Engelm.) pine plantations in East Texas have been previously developed and published by:

Lenhart, J. D., E. V. Hunt, Jr. and J. A. Blackard. 1986. Site index equations for loblolly and slash pine plantations on non-old-field in East Texas. South. J. Appl. For. 10(2):109-112.

Vaughn, A. B., J. Lapongan and J. D. Lenhart. 1993. Site index equations for loblolly and slash pine plantations in East Texas - Update: 1993. ETPPRP Report 27. College of Forestry. SFASU. 6 p.

Members FOR 317 Class Spring '94. 1994. Site index equations for loblolly and slash pine plantations in East Texas - Update: 1994. ETPPRP Report 29. College of Forestry. SFASU. 7 p.

Each published set of equations was developed from analyses of East Texas Pine Plantation Research Project (ETPPRP) data collected from the array of ETPPRP permanent research plots located throughout East Texas.

Since the ETPPRP plots are repeatedly measured on a 3-year cycle, the number of age-height pairs available for site index analysis is increasing:

The 1986 equations: 150 loblolly and 75 slash.
The 1993 equations: 608 loblolly and 264 slash.
The 1994 equations: 653 loblolly and 296 slash.

In this update, after combining the data from the two subplots comprising each ETPPRP plot, the number of age-height pairs available for this analysis is 1,428 loblolly and 630 slash.

It is anticipated that the equations in this 1995 update may quantify the productivity of East Texas loblolly and slash pine plantations in a more accurate and reliable manner than the three previous sets of equations.

PLANTATION MEASUREMENTS

Each ETPPRP plot consists of two subplots separated by a 60' buffer zone. An experimental design of this manner provides the opportunity to:

- Evaluate models in an independent manner.
- Explore effects of different treatments.
- Investigate regression models.

In this site index analysis, by combining the subplots, a larger data set for non-linear regression was obtained.

The characteristics of the 1,428 loblolly pine and 630 slash pine observations at least one year old and one foot in height that were utilized in this study can be summarized as:

Plantation Age

Number
of
Years
Since Planting

(A)

LOBLOLLY...

Mean = 10.3 yrs.
Range = 1- 27 yrs

SLASH...

Mean = 9.9 yrs.
Range = 1- 24 yrs.

Plantation Height

Average total height
in feet
of tallest trees
in an area of interest

(H)

LOBLOLLY...

Mean = 34.4 ft.
Range = 2 - 100 ft.

SLASH...

Mean = 33.3 ft.
Range = 2 - 89 ft.

Site Index

Expected total height
in feet
of tallest trees
in an area of interest
at 25 years

(S)

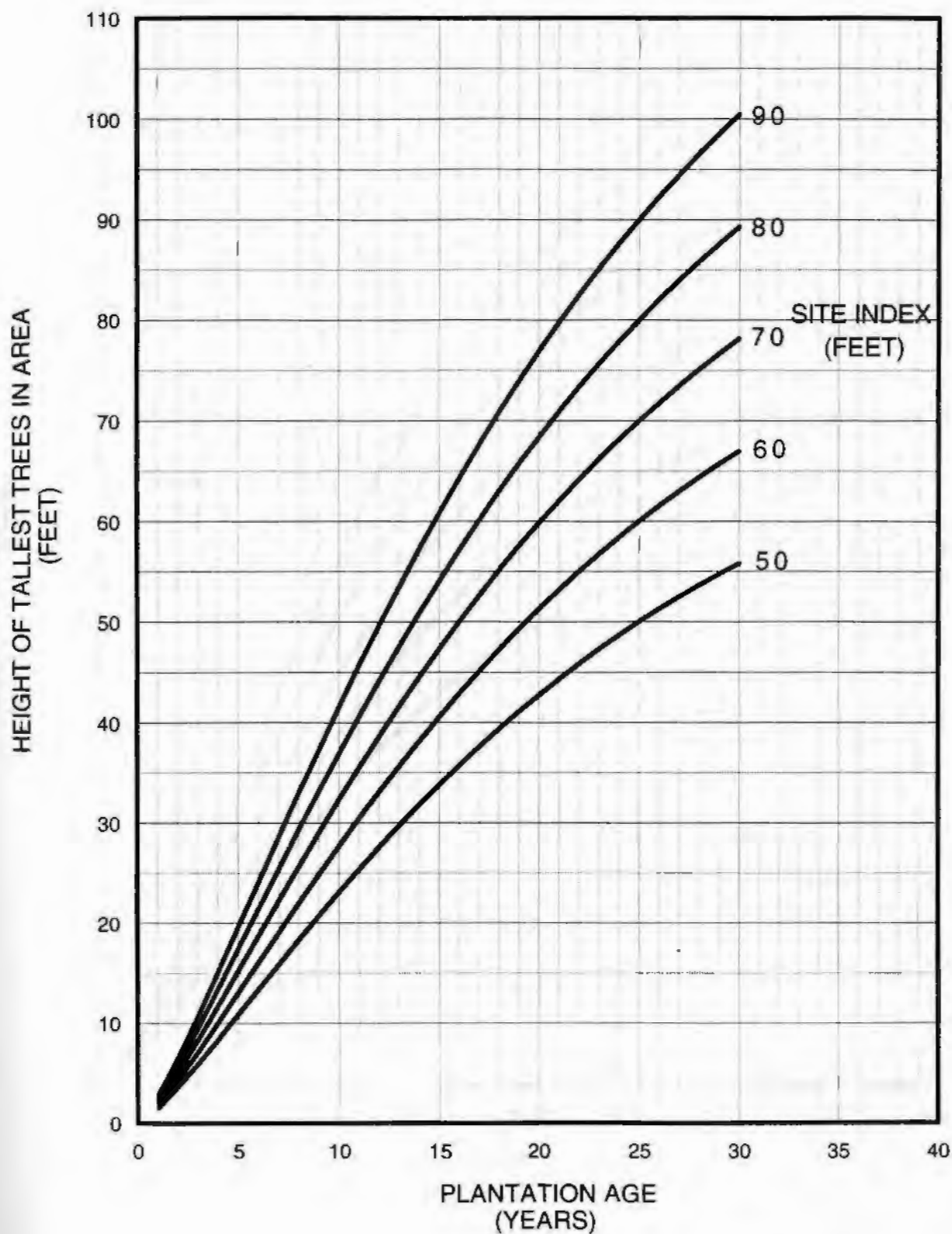
LOBLOLLY...

Mean = 69.4 ft.
Range = 24 - 238 ft.

SLASH...

Mean = 75.2 ft.
Range = 15 - 132 ft.

**SITE INDEX CURVES
FOR SLASH PINE PLANTATIONS IN EAST TEXAS
BASE AGE 25 YEARS**



**SITE INDEX CURVES
FOR LOBLOLLY PINE PLANTATIONS IN EAST TEXAS
BASE AGE 25 YEARS**

